CRAWFORD UNIVERSITY FAITH CITY, IGBESA

COLLEGE OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES

HARMATTAN SEMESTER EXAMINATION SESSION: 2018/19

COURSE CODE: CSC 319

COURSE TITLE: OPERATING SYSTEM 11

TIME: 3HOURS

INSTRUCTION: ANSWER FOUR QUESTIONS ONLY

1(a) Explain Memory Management and state its objectives. **(3MKS)**

(b)Describe the following Memory Management Techniques, state their strengths and weaknesses. (i) Simple Segmentation (ii) Virtual Memory Paging (iii) Virtual Memory Segmentation. **(6MKS)**

(c) Enumerate the Memory Management Requirements. **(3MKS)**

(d) Differentiate between the followings pair:

(i) File and File system (ii) Page and Segment (iii) Best fit and first fit. **(3MKS)**

2(a) With the aid of diagram explain the logical structure of input /output organization. **(6MKS)**

(b) Explain the techniques required to perform input/output functions. **(3MKS)**

(c) Explain the two paramount objectives in designing input/output facilities. **(3MKS)**

(d) Enumerate the categories of Input/output devices used in the computer system. **(3MKS)**

3(a) With the aid of diagram explain the types of buffering techniques as used in Operating System. **(4MKS)**

(b) Explain the following disk performance parameters (i) RAID approach (ii) Disk approach. **(4MKS)**

(c) Enumerate the evolutionary steps in input/output functions. **(4MKS)**

(d) Outline the various ways by which concurrency can arise in Operating System. **(3MKS)**

4(a) Describe File Management System as used in Operating System and state its objectives. **(4MKS)**

(b) With the aid of a diagram show the file system architecture. **(4MKS)**

(c) Explain the three file allocation methods a used in the secondary storage. **(4MKS)**

(d) Enumerate the basic elements of file directory. **(3MKS)**

5(a) Describe concurrency as used in Operating System and state the central theme in Operating System design. **(4MKS)**

(b) Explain the following Operating System Terminologies:

(i) Deadlock (ii) Starvation (iii) Mutual Exclusion (iv) Critical Section. **(4MKS)**

(c) Enumerate the various ways in which operating system manages free space in secondary storage. **(2.5MKS)**

5(d) Explain the various ways in which processes interacts with others on awareness basis. **(4.5MKS)**

6(a) Explain the following Replacement policy algorithm: (i) optimal (ii) First in First Out (iii) Least Recently Used. **(4.5MKS)**

(b) Write short notes on the followings in Operating System: (i) Semaphore (ii) Message Passing (iii) Monitor (iv) Race Condition. **(4MKS)**

(c) Enumerate the various ways of satisfying mutual exclusion requirements in Operating System. **(3MKS)**

(d) Outline the Operating System policies for virtual memory. **(3.5MKS)**